

111TH CONGRESS
1ST SESSION

H. R. 1580

To authorize the Administrator of the Environmental Protection Agency to award grants for electronic waste reduction research, development, and demonstration projects, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 18, 2009

Mr. GORDON of Tennessee (for himself, Mr. THOMPSON of California, Mr. BAIRD, Mr. CARNAHAN, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. WU, and Mr. LUJÁN) introduced the following bill; which was referred to the Committee on Science and Technology

A BILL

To authorize the Administrator of the Environmental Protection Agency to award grants for electronic waste reduction research, development, and demonstration projects, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Electronic Waste Re-
5 search and Development Act”.

6 **SEC. 2. FINDINGS.**

7 Congress finds the following:

1 (1) The volume of obsolete, broken, stored, or
2 discarded electronic devices, known as electronic
3 waste, is substantial and will continue to grow. The
4 Environmental Protection Agency estimates that
5 over 2 billion computers, televisions, cell phones,
6 printers, gaming systems, and other devices have
7 been sold since 1980, generating 2 million tons of
8 unwanted electronic devices in 2005 alone.

9 (2) Electronic waste can be refurbished or recy-
10 cled to recover and conserve valuable materials, such
11 as gold, copper, and platinum. However, according
12 to the Environmental Protection Agency, only 15 to
13 20 percent of household generated electronic waste
14 reaches recyclers.

15 (3) The electronic waste recycling industry in
16 the United States is growing; however, challenges re-
17 main for the recycling of electronic waste generated
18 by households and other small generators. Collection
19 of the electronic waste is expensive, and separation
20 and proper disposal of some of the materials recov-
21 ered, like lead from cathode-ray tube televisions, is
22 costly.

23 (4) The export of electronic waste to developing
24 countries also presents a serious challenge. The
25 crude methods of many of the recycling operations

1 in these countries can expose workers to harmful
2 chemicals, jeopardizing their health and polluting
3 the environment.

4 (5) Some of the challenges to increasing the
5 volume of electronic waste that is recycled can be
6 addressed by improving the logistics and technology
7 of the collection and recycling process, designing
8 electronic devices to avoid the use of hazardous ma-
9 terials and to be more easily recycled, and encour-
10 aging the use of recycled materials in more applica-
11 tions.

12 (6) The public currently does not take full ad-
13 vantage of existing electronic waste recycling oppor-
14 tunities. Studying factors that influence behavior
15 and educating consumers about electronic waste
16 could help communities and private industry develop
17 recycling programs that draw more participation.

18 (7) The development of tools and technologies
19 to increase the lifespan of electronic devices and to
20 promote their safe re-use would decrease the impact
21 of the production and disposal of electronic devices
22 on the environment.

23 (8) Accurately assessing the environmental im-
24 pacts of the production of electronic devices and the
25 recycling of electronic waste is a complex task. Data,

1 tools, and methods to better quantify these impacts
2 would help policymakers and others determine the
3 best end-of-life management options for electronic
4 devices.

5 **SEC. 3. ELECTRONIC WASTE ENGINEERING RESEARCH, DE-**
6 **VELOPMENT, AND DEMONSTRATION**
7 **PROJECTS.**

8 (a) IN GENERAL.—The Administrator shall award
9 multiyear grants to consortia to conduct research to create
10 innovative and practical approaches to reduce the volume
11 and manage the environmental impacts of electronic waste
12 and, through the conduct of this research, to contribute
13 to the professional development of scientists, engineers,
14 and technicians in the fields of electronic device manufac-
15 turing, design, refurbishing, and recycling. The grants
16 awarded under this section shall support research to—

17 (1) increase the efficiency of and improve elec-
18 tronic waste collection and recycling;

19 (2) expand the uses and applications for mate-
20 rials recovered from electronic waste;

21 (3) develop and demonstrate environmentally
22 friendly alternatives to the use of hazardous and po-
23 tentially hazardous materials in electronic devices
24 and the production of such devices;

1 (4) develop methods to identify, separate, and
2 remove hazardous and potentially hazardous mate-
3 rials from electronic waste and to re-use, recycle, or
4 dispose of such materials in a safe manner;

5 (5) reconsider product design and assembly to
6 facilitate and improve refurbishment, re-use, and re-
7 cycling of electronic devices;

8 (6) conduct lifecycle analyses of electronic de-
9 vices, including developing tools and methods to as-
10 sess the environmental impacts of the production,
11 use, and end-of-life management of electronic devices
12 and electronic device components;

13 (7) develop product design, tools, and tech-
14 niques to extend the lifecycle of electronic devices,
15 including methods to promote their upgrade and
16 safe re-use; and

17 (8) develop strategies to increase awareness,
18 consumer acceptance, and the practice of responsible
19 recycling and re-use for electronic waste.

20 (b) MERIT REVIEW; COMPETITION.—Grants shall be
21 awarded under this section on a merit-reviewed, competi-
22 tive basis.

23 (c) APPLICATIONS.—A consortium shall submit an
24 application for a grant under this section to the Adminis-
25 trator at such time, in such manner, and containing such

1 information and assurances as the Administrator may re-
2 quire. The application shall include a description of—

3 (1) the research project that will be undertaken
4 by the consortium and the contributions of each of
5 the participating entities, including the for-profit en-
6 tity;

7 (2) the applicability of the project to reduce
8 electronic waste in the electronic device design, man-
9 ufacturing, refurbishing, or recycling industries;

10 (3) the potential for and feasibility of incor-
11 porating the research results into industry practice;
12 and

13 (4) how the project will promote collaboration
14 among scientists and engineers from different dis-
15 ciplines, such as electrical engineering, materials
16 science, and social science.

17 (d) DISSEMINATION OF RESEARCH RESULTS.—Re-
18 search results shall be made publicly available through—

19 (1) development of best practices or training
20 materials for use in the electronics manufacturing,
21 design, refurbishing, or recycling industries;

22 (2) dissemination at conferences affiliated with
23 such industries;

24 (3) demonstration projects; and

1 (4) educational materials for the public pro-
2 duced in conjunction with State governments, local
3 governments, or nonprofit organizations on problems
4 and solutions related to electronic waste.

5 (e) FUNDING CONTRIBUTION FROM FOR-PROFIT
6 MEMBER OF CONSORTIUM.—The for-profit entity partici-
7 pating in the consortium shall contribute at least 10 per-
8 cent of the total research project cost, either directly or
9 with in-kind contributions.

10 (f) BIENNIAL REPORT.—Within 2 years after the
11 date of enactment of this Act, and every 2 years there-
12 after, the Administrator shall transmit a report to Con-
13 gress that provides a list of the grants awarded under this
14 section, the entities participating in each consortium re-
15 ceiving a grant, a description of the research projects car-
16 ried out in whole or in part with funds made available
17 under such grant, and the results of such projects.

18 (g) AUTHORIZATION OF APPROPRIATIONS.—There
19 are authorized to be appropriated to the Administrator to
20 carry out this section:

21 (1) \$18,000,000 for fiscal year 2010.

22 (2) \$20,000,000 for fiscal year 2011.

23 (3) \$22,000,000 for fiscal year 2012.

1 **SEC. 4. NATIONAL ACADEMY OF SCIENCES REPORT ON**
2 **ELECTRONIC WASTE.**

3 (a) IN GENERAL.—In order to better recognize gaps
4 and opportunities in the research and training programs
5 established in this Act, the Administrator shall enter into
6 an arrangement with the National Academy of Sciences
7 for a report, to be transmitted to Congress not later than
8 1 year after the date of enactment of this Act, on—

9 (1) opportunities for and barriers to—

10 (A) reducing the volume of electronic
11 waste, specifically addressing—

12 (i) recycling or safe disposal of elec-
13 tronic waste and low value materials recov-
14 ered from such waste;

15 (ii) designing electronic devices to fa-
16 cilitate re-use and recycling; and

17 (iii) the re-use of electronic devices;
18 and

19 (B) making electronic devices safer and
20 more environmentally friendly, specifically ad-
21 dressing reducing the use of hazardous mate-
22 rials and potentially hazardous materials in
23 electronic devices;

24 (2) the risks posed by disposal of electronic
25 waste; and

1 (3) the current status of research and training
2 programs to promote the environmental design of
3 electronic devices to reduce electronic waste.

4 (b) RECOMMENDATIONS.—The report under sub-
5 section (a) shall identify gaps in the current research and
6 training programs in addressing the opportunities, bar-
7 riers, and risks relating to electronic waste, and the report
8 shall recommend areas where additional research and de-
9 velopment resources are needed to reduce the impact of
10 electronic waste on the environment.

11 **SEC. 5. ENGINEERING CURRICULUM DEVELOPMENT**
12 **GRANTS.**

13 (a) GRANT PROGRAM.—The Administrator, in con-
14 sultation with the National Science Foundation, shall
15 award grants to institutions of higher education to develop
16 curricula that incorporates the principles of environmental
17 design into the development of electronic devices—

18 (1) for the training of electrical, mechanical, in-
19 dustrial, manufacturing, materials, and software en-
20 gineers and other students at the undergraduate and
21 graduate level; and

22 (2) to support the continuing education of pro-
23 fessionals in the electronic device manufacturing, de-
24 sign, refurbishing, or recycling industries.

1 (b) ELIGIBLE ENTITIES.—The term “institution of
2 higher education”, as such term is used with respect to
3 eligibility to receive a grant under subsection (a)(2), in-
4 cludes any institution of higher education under section
5 101(b) of the Higher Education Act of 1965 (20 U.S.C.
6 1001(b)).

7 (c) MERIT REVIEW; COMPETITION.—Grants shall be
8 awarded under this section on a merit-reviewed, competi-
9 tive basis.

10 (d) USE OF FUNDS.—Grants awarded under this sec-
11 tion shall be used for activities that enhance the ability
12 of an institution of higher education to broaden the under-
13 graduate and graduate-level engineering curriculum or
14 professional continuing education curriculum to include
15 environmental engineering design principles and consider-
16 ation of product life cycles related to electronic devices and
17 the reduction of electronic waste. Activities may include—

18 (1) developing and revising curriculum to in-
19 clude multidisciplinary elements;

20 (2) creating research and internship opportuni-
21 ties for students through partnerships with industry,
22 nonprofit organizations, or government agencies;

23 (3) creating and establishing certificate pro-
24 grams; and

1 (4) developing curricula for short courses and
2 continuing education for professionals in the envi-
3 ronmental design of electronic devices to reduce elec-
4 tronic waste.

5 (e) APPLICATION.—An institution of higher edu-
6 cation seeking a grant under this section shall submit an
7 application to the Administrator at such time, in such
8 manner, and with such information and assurances as the
9 Administrator may require.

10 (f) AUTHORIZATION OF APPROPRIATIONS.—There
11 are authorized to be appropriated to the Administrator to
12 carry out this section:

13 (1) \$5,000,000 for fiscal year 2010.

14 (2) \$5,150,000 for fiscal year 2011.

15 (3) \$5,304,000 for fiscal year 2012.

16 **SEC. 6. ENVIRONMENTALLY FRIENDLY ALTERNATIVE MA-**
17 **TERIALS PHYSICAL PROPERTY DATABASE.**

18 (a) IN GENERAL.—The Director shall establish an
19 initiative to develop a comprehensive physical property
20 database for environmentally friendly alternative materials
21 for use in electronic devices.

22 (b) PRIORITIES.—The Director, working with the
23 electronic device design, manufacturing, or recycling in-
24 dustries, shall develop a strategic plan to establish prior-

ities and the physical property characterization requirements for the database described in subsection (a).

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator to carry out this section:

(1) \$3,000,000 for fiscal year 2010.

(2) \$3,000,000 for fiscal year 2011.

(3) \$3,000,000 for fiscal year 2012.

SEC. 7. DEFINITIONS.

For the purposes of this Act:

(1) ADMINISTRATOR.—The term “Administrator” means the Administrator of the Environmental Protection Agency.

(2) CONSORTIUM.—The term “consortium” means a grant applicant or recipient under section 3(a) that includes—

(A) at least one institution of higher education, nonprofit research institution, or government laboratory; and

(B) at least one for-profit entity, including a manufacturer, designer, refurbisher, or recycler of electronic devices or the components of such devices.

1 (3) DIRECTOR.—The term “Director” means
2 the Director of the National Institute of Standards
3 and Technology.

4 (4) ELECTRONIC WASTE.—The term “electronic
5 waste” means obsolete, broken, stored, or discarded
6 electronic devices, including computers, computer
7 monitors, televisions, laptops, printers, cellular
8 phones, copiers, fax machines, stereos, video gaming
9 systems, and the components of such devices.

10 (5) INSTITUTION OF HIGHER EDUCATION.—The
11 term “institution of higher education” has the
12 meaning given such term in section 101(a) of the
13 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

○